NEURODEGENERATION- A BIOCHEMICAL PERSPECTIVE

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Iron is the most abundant metal in the human body and the brain like the liver, contains a concentration of iron substantially higher than that of any metal. Although the function of regionally high iron concentrations is unknown the homeostasis of brain iron is thought to be necessary for normal brain function, especially in learning and memory. Thus, a high content of iron maybe essential particularly during development, but its presence means that injury to brain cells may release ferric ions that can lead to oxidative stress via formation of oxygen free radicals. Such radicals are thought to be involved in lipid peroxidation of cell membrane, leading to increased membrane fluidity. Iron is an essential participant in many metabolic processes via DNA, RNA and protein synthesis, as a cofactor for many heme and non-heme enzymes, in the formation of myelin, and in the development of neuronal dendritic tress. A deficiency of iron would be expected to alter some or all of these processes. This review will mainly focus on some the experimental evidence indicating the role of disturbed iron metabolism as a cause of neurodegenerative disorders, namely Parkinson's and Alzheimer's. The review will also highlight the roles of ascorbic acid, nitric oxide and some metals such as copper, zinc and aluminum in the potentiation of neurodegenerative diseases via free radical formation.